SOUTH CAROLINA PUBLIC SERVICE COMMISSION
DOCKET NO. 2001-001-E
DIRECT TESTIMONY OF CAROLINA POWER & LIGHT COMPANY

WITNESS JEFFERY D. HINES

Q. Mr. Hines, will you please state your full name, occupation, and address?

A. My name is Jeffery D. Hines. I am employed by Carolina Power & Light Company as Manager – Power System Operations (Carolinas). My business address is 3401 Hillsborough Street, Raleigh, North Carolina.

Q. Please summarize briefly your educational background and experience.

A. I graduated from North Carolina State University in 1985 with a B.S. Degree in Electrical Engineering. I am a member of IEEE and became a registered Professional Engineer in the state of North Carolina in 1996. I joined CP&L in 1985 and have held several engineering positions. These include: Associate Engineer in Transmission Maintenance, Senior Engineer in System Operations Planning, Senior Engineer in Power System Operations Training and Support, Senior System Operator, and Manager. As an Associate Engineer in Transmission Maintenance, I planned and conducted maintenance activities for transmission equipment, diagnosed problem equipment, and recommended corrective actions. As Senior Engineer in System Operations Planning, I supported the Energy Control Center by developing thermal unit heat rate data; providing unit commitment analysis; and optimizing the generating unit maintenance schedule. As Senior Engineer in Power System Operations Training and Support, I developed and delivered training to the System Operators. I also provided engineering analysis for planned transmission equipment outages. As Senior System Operator, I was

responsible for short-term load forecasting, resource scheduling, and generation maintenance planning. In my current position, I am responsible for the economic and reliable operation of CP&L's power system which includes both the generation and transmission resources. I am currently CP&L's alternate member to both the SERC Operating Committee and VACAR Operating Task Force.

Q. What is the purpose of your testimony here today?

A. The purpose of my testimony is to review the operating performance of the Company's generating facilities during the period of January 1, 2000 through December 31, 2000 and the expected operating performance of the nuclear units for the projected period April 1, 2001 to March 31, 2002.

Q. Describe the types of generating facilities owned and operated by CP&L.

A. CP&L owns and operates a diverse mix of generating facilities consisting of hydro facilities, combustion turbines, fossil steam generating facilities, and nuclear plants.

Q. Why does CP&L utilize such a diverse mix of generating facilities?

A. Each type of facility has different operating and installation costs and is generally intended to meet a certain type of loading situation. In combination, the diversity of the system, in conjunction with power purchases made when doing so is more cost-effective than using a CP&L generating unit, allows CP&L to meet the continuously changing customer load pattern in a reasonable, cost-effective manner. The combustion turbines, which have relatively low installation costs but higher operating costs, are intended to be operated infrequently. They also provide resources that can be started in a relatively short time for emergency situations. In contrast, the large coal and nuclear steam generating plants have relatively high

installation costs with lower operating costs, and are intended to operate in a manner to meet the constant level of demand on the system. Based on the load level that CP&L is called on to serve at any given point in time, CP&L selects the combination of facilities which will produce electricity in the most economical manner, giving due regard to reliability of service and safety. This approach provides for overall minimization of the total cost of providing service.

Q. Please elaborate on the intended use of each type of facility CP&L uses to generate electricity.

A. As a general rule, peaking resources such as combustion turbines, are constructed with the intention of running them very infrequently, i.e., only during peak or emergency conditions. Therefore, as a rule, they have a very low capacity factor, generally less than 10%. Because combustion turbines can be started quickly in response to a sharp increase in customer demand, without having to continuously operate the units, they are very effective in providing reserve capacity. Intermediate facilities are intended to operate more frequently and are subject to daily load variations. Because these facilities take some time to come from a cold shut down situation, they are best utilized to respond to the more predictable system load patterns. Additionally, these plants, located across the Company's service territory, contribute to overall system reliability. As a rule, they operate with capacity factors in the range of 10% to 60%. CP&L's intermediate facilities are predominately older coal plants. Baseload facilities are intended and designed to operate on a near continuous basis with the exception of outages for required maintenance, modifications, repairs, major overhauls, or for refueling in the case of

nuclear plants. These plants are traditionally called on to operate in the 60% and greater capacity factor range. CP&L's four nuclear units and four larger coal units constitute the Company's baseload facilities.

Q. How does CP&L ensure that it operates these three types of generating facilities as economically as possible?

A. The Company has a central Energy Control Center which monitors the electricity demands within the CP&L service area. The Energy Control Center regulates and dispatches available generating units in response to customer demand. Sophisticated computer control systems match the changing load with available sources of power. Personnel at the Energy Control Center, in addition to being in contact with the Company's generating plants, are also in communication with other utilities bordering our service territory. In the event a CP&L plant is suddenly forced off-line, the interconnections with neighboring utilities help to ensure that service to our customers will go uninterrupted. Additionally, it allows CP&L access to the unloaded capacity of neighboring utilities so that CP&L customers will be served by the lowest cost power available through inter-utility purchases.

Q. What percentage of energy is typically provided by the Company's nuclear, fossil, combustion turbine, hydro, and purchased resources during both summer and winter peaks?

A. The percentages do not vary greatly between the summer and winter periods. Typically values are 1 – 2% hydro, 30% nuclear, 45% fossil, 5 – 15% combustion turbines and 5 – 10% purchases. Some slight seasonal differences occur in hydro due to rainfall. Cooler ambient temperatures in the winter also allow the fossil,

nuclear, and combustion turbines to generate at a higher output level. Combustion turbine and purchase percentages tend to be slightly less in the winter due to a lower peak demand.

Q. How does CP&L determine when it needs to purchase power?

A. CP&L is constantly reviewing the power markets for purchase opportunities. We buy when there is reliable capacity available that is less expensive than the resources we currently have or are considering building. This is done on an hourly, daily, weekly, monthly, yearly, and multi-year basis.

Q. When all available facilities are operating and more power is needed, what happens?

A. There are several courses of action that could be taken. One is to go to the power markets for purchase opportunities. A second is to call on reserves from neighboring utilities. CP&L participates in the VACAR reserve sharing group. VACAR is made up of several utilities in Virginia and the Carolinas. Each member of the group maintains a reserve of capacity that may be called on and scheduled to another member that is in need. If there is absolutely no power available, the only action remaining is to reduce the demand on the system to maintain the integrity of the interconnection. This is accomplished through the General Load Reduction Plan (GLRP). The plan begins with voltage reduction and customer appeals, progresses to interrupting curtaillable industrial customers and then to rotating outages. CP&L makes every effort to avoid implementation of the GLRP by maintaining adequate reserves levels and maintaining the generation fleet for reliable operation.

Q. During the review period January 1, 2000 through December 31, 2000, did CP&L prudently operate its generating system within the guidelines discussed in regard to the three types of facilities?

A. Yes. Two different measures are utilized to evaluate the performance of generating facilities. They are equivalent availability factor and capacity factor. Equivalent availability factor refers to the percent of a given time a facility was available to operate at full power if needed. Capacity factor measures the generation a facility actually produces against the amount of generation that theoretically could be produced in a given time period, based on its maximum dependable capacity. Equivalent availability factor describes how well a facility was operated, even in cases where the unit was used in a load following application. CP&L's combustion turbines averaged 87% equivalent availability for the twelve-month review period ending in December 2000, and less than 5% capacity factor indicating that they were almost always available for use but operated minimally. This is consistent with their intended purpose. CP&L's intermediate, or cycling units, had an average equivalent availability factor of 91.4% and a capacity factor of 61.1%, again indicative of good performance and management. CP&L's fossil baseload units had an average equivalent availability of 92.4% and a capacity factor of 84.4%. Thus, the fossil baseload units were well managed and operated. CP&L's nuclear generation system achieved a net capacity factor of 96.5% for the twelve-month review period. Excluding outage time associated with reasonable refueling outages, the nuclear generation system's net capacity factor rises to approximately 100.3%.

Importantly, even if the refueling outages are not excluded, the system capacity factor was 96.5%. Therefore, pursuant to S.C. Code Ann. § 58-27-865(F), since the adjusted capacity factor exceeds 92.5%, CP&L is presumed to have made every reasonable effort to minimize the cost associated with the operation of its nuclear generation system.

Q. How did CP&L's nuclear production in 2000 compare to previous years?

A. CP&L's nuclear generating plants set all-time Company records during 2000, producing over 26 million megawatt-hours and providing 46% of the total electric generation. Brunswick Unit 2 and Robinson Unit 2 both set station generating records during the year (2000), generating over 13 million megawatt-hours during 2000. The four nuclear units generated almost 27 million megawatt-hours during the year. This is the seventh consecutive year the CP&L nuclear units have set a new total nuclear generation record.

Q. You have not specifically addressed the performance of CP&L's hydro units. Please discuss their performance.

A. The usage of the hydro facilities on the CP&L system is limited by the availability of water that can be released through the turbine generators. The Company's hydro plants have very limited ponding capacity for water storage. CP&L operates the hydro plants to obtain the maximum generation from them; but because of the small water storage capacity available, the hydro units have been primarily utilized for peaking and regulating purposes. This maximizes the economic benefit of the units. For the review period, the hydro units had an equivalent availability of 93.1% and operated at a capacity factor of 23%.

Q. How did the Company's fossil units perform as compared to the industry?

A. Our fossil steam system operated well during this review period, achieving an equivalent availability of 90.8%. This exceeds the most recently published NERC average equivalent availability for coal plants of 84.0%. The NERC average covers the period 1995-1999 and represents the performance of 892 units. Equivalent availability is a more meaningful measure of performance for coal plants than capacity factor because the output of our fossil units varies significantly depending on the level of system load. Our larger fossil units, Roxboro Units 2, 3, and 4 and Mayo Unit 1, operated at equivalent availabilities of 93.4%, 93.6%, 77.2%, and 96.4%, respectively. As I mentioned earlier, the baseload coal units achieved an average equivalent availability of 92.4%.

Q: How did the performance of CP&L's nuclear system compare to the industry average?

A: During the period January 1, 2000 through December 31, 2000, CP&L's pressurized water reactors ("PWRs"), Robinson Unit 2 and Harris Unit 1, achieved capacity factors of 104.0% and 91.1%, respectively. On average, these nuclear units operated at a 96.8% capacity factor during the test period. In contrast, the NERC five-year average capacity factor for 1995-1999 for all commercial PWRs in North America was 79.1%. Brunswick Units 1 and 2, which are both boiling water reactors ("BWRs"), achieved capacity factors of 93.7% and 99.0%, with an average of 96.3%. The NERC five-year capacity factor average for 1995-1999 for all BWRs was 71.0%. CP&L's nuclear system incurred only a 0.68% forced outage rate during the test period compared to the industry average of 10.4%.

Q. Are you presenting any exhibits with your testimony?

A. Yes. Hines Exhibit No. 1 is a graphic representation of the Company's generation system operation for the twelve-month review period.

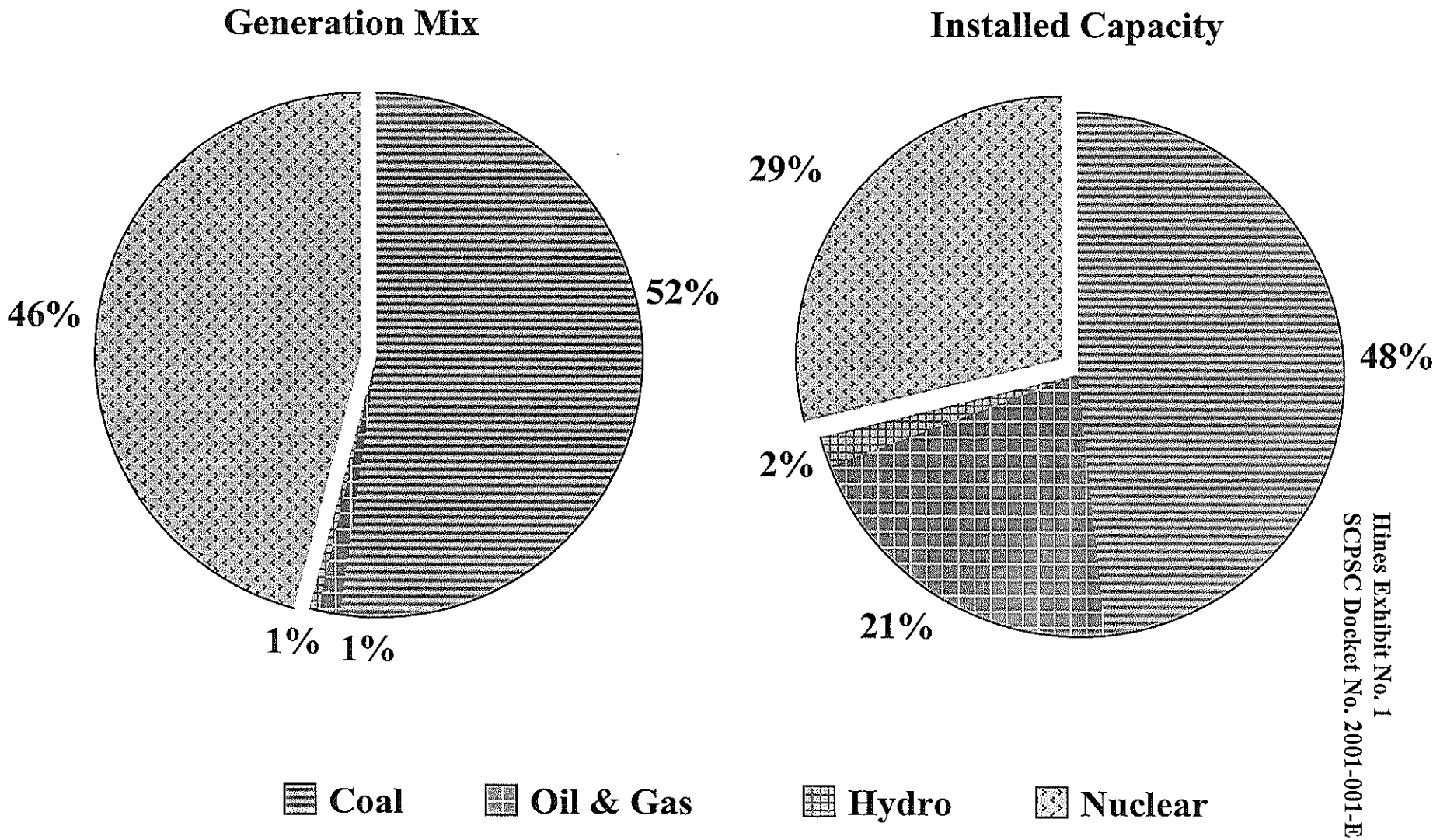
Q. Please describe the projected performance of CP&L's nuclear system for the time period April 1, 2001 through March 31, 2002.

A. Including the impact of planned refueling outages, I project that CP&L's nuclear units will achieve an average net capacity factor of 89.36% during this period. This projected capacity factor is caused by three refueling outages. The Harris Plant refueling outage will also involve the replacement of the steam generator which will extend the outage by 35-40 days.

Q. Does this conclude your testimony?

A. Yes.

Comparison of CP&L Installed Generating Capacity to Actual Generation Mix January through December 2000



Hines Exhibit No. 1
SCPSC Docket No. 2001-001-E